

Appl. No.: 10/709,680
Amdt. Dated: 7/7/2006
Reply to Office action of: 04/14/2006

AMENDMENTS TO THE DRAWINGS:

No amendments to the drawings are being presented herewith.

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REMARKS/ARGUMENTS

Claims 1 – 4 remain in this application. Claims 1 – 4 have been amended to correct grammatical and typographical errors and provide proper claim formatting.

No new matter has been introduced by these amendments.

Claims 1 – 4 have been objected to by the Examiner. Specifically, the Examiner states:

Claims 1 – 4 are objected to because of the following informalities:

In claim 1, lines 3 – 7, the phrase of “characterized because said heat sink (2) as well as the connection elements (3) ... previously mentioned rack structure (1), distribute at opposite extremes,” is unclear.

In claim 2, line 1, “Integrated electronic container,” should correct as – The integrated electronic container, – ; in line 2, a word “because” should correct as – in – .

In claim 3, line 1, “Integrated electronic container,” should correct as – The integrated electronic container – .”

Appropriate correction is required.

Claim 4 is objected to under 37 CFR 1.75©, as being of improper dependent form for failing to further limit the subject matter of the previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 4 and claim 3 are identical.

By this amendment the claims have been revised to overcome these objections and Applicants respectfully request these objections be removed.

Claims 1 – 2 were rejected under 35 U.S.C. 102(b) as being anticipated by Watari (US 4,612,601). Specifically, the Examiner states:

Regarding claim 1, Watari discloses an integrated electronic container (figure 1) having a rack structure (4), a heat sink (5) being mounted on the top of the rack structure, and connection elements (8) being mounted opposite side of the heat sink of the rack structure, wherein the integrated electronic container has at least one electronic circuits in the interior of the rack structure, and a thermal gel/conductive resin (3, figure 1) transmits the heat generated from components (9) to the heat sink (figure 1).

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Regarding claim 2, Watari discloses the rack structure includes at least two bodies, a receiving body (1) in which base the connectors are located, and a cover (4) where the heat sink is placed, being the closure between both bodies of the rack provided with airtight joints (figure 1).

Applicant respectfully traverses this rejection. The key to Applicants' invention is an enclosure suitable for mounting in an electronic device cabinet that provides an airtight enclosure for the mounting of electronic components and circuit boards while also providing for the removal of heat generated by said electronic components and circuit board devices. In addition, there is provided a manner of mounting which allows for the easy plug-in mounting and dismounting of the enclosure and connection and disconnection of the devices mounted therein. Further, the claimed invention provides for the removal and replacement of the mounted electronic components housed within the claimed invention. Applicants' claimed invention does not require that the heat sink cover be physically, permanently attached to the surface of the electronic components or devices it houses. Further it does not require the use of multiple adhesives to provide particular gaps between the surface of electronic devices housed within the claimed invention and the heat sink containing cover of said claimed invention.

A fair reading of the Watari (US 4,612,601) reference discloses an integrated chip circuit board having critical elements of flexible beam leads for the chips to the board substrate (see for example, Col. 1, lines 32 – 36) and permanent mounting of the chips back surface to the circuit board heat sink containing cover (see for example Col. 4, line 53 – Col. 5, line 8). Because the back of the chips are permanently adhered to the underside of the heat sink cover said cover must have a similar thermal expansion coefficient as the chip material (see for example, Col 4, lines 15 – 38). Because the chips are fixedly mounted to the cover the permanent mounting to the board substrate surface must be through a beam lead to allow for movement of the chip during heating and cooling cycles to prevent mechanical stress from damaging the chips (see for example, Col. 4, lines 44 – 57). There is nothing in this reference that discloses how to remove these critical elements to allow for the chips to be removed or to allow the claimed device to be rack mounted in a removable manner to an electronic device cabinet.

Clearly, when viewed in this light the Watari (US 4,612,601) reference does not disclose, teach, or suggest the enclosure suitable for mounting in an electronic device

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cabinet that provides an airtight enclosure for the mounting of electronic components and circuit boards while also providing for the removal of heat generated by said electronic components and circuit board devices.

Claims 3 – 4 were rejected under 35 U.S.C. 103(a) as being unpatentable over Watari in view of Kohara et al. (US 4,654,966). Specifically, the Examiner states:

Regarding claim 3 and 4, Watari discloses the instant claimed invention except for the rack structure comprising more than two bodies, and all of them being provided with airtight joints.

Kohara et al. disclose an apparatus structure (figure 12) comprising a plurality of bodies (2, 4 and 7), being provided with airtight joints (figure 12).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the rack structure design of Kohara et al. with the rack structure of Watari, for the purpose of providing strengthening of the rack, the airtight joints will provide high efficiency of dissipation heat from the component.

Applicant respectfully traverses this rejection. The key to Applicants' invention, as discussed above, is an enclosure suitable for mounting in an electronic device cabinet that provides an airtight enclosure for the mounting of electronic components and circuit boards while also providing for the removal of heat generated by said electronic components and circuit board devices. In addition, there is provided a manner of mounting which allows for the easy plug-in mounting and dismounting of the enclosure and connection and disconnection of the devices mounted therein. Further, the claimed invention provides for the removal and replacement of the mounted electronic components housed within the claimed invention. Applicants' claimed invention does not require that the heat sink cover be physically, permanently attached to the surface of the electronic components or devices it houses. Further it does not require the use of multiple adhesives to provide particular gaps between the surface of electronic devices housed within the claimed invention and the heat sink containing cover of said claimed invention.

A fair reading of the Watari (US 4,612,601) reference, as discussed above, discloses an integrated chip circuit board having critical elements of flexible beam leads for the chips to the board substrate (see for example, Col. 1, lines 32 – 36) and permanent

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mounting of the chips back surface to the circuit board heat sink containing cover (see for example Col. 4, line 53 – Col. 5, line 8). Because the back of the chips are permanently adhered to the underside of the heat sink cover said cover must have a similar thermal expansion coefficient as the chip material (see for example, Col 4, lines 15 – 38). Because the chips are fixedly mounted to the cover the permanent mounting to the board substrate surface must be through a beam lead to allow for movement of the chip during heating and cooling cycles to prevent mechanical stress from damaging the chips (see for example, Col. 4, lines 44 – 57). There is nothing in this reference that discloses how to remove these critical elements to allow for the chips to be removed or to allow the claimed device to be rack mounted in a removable manner to an electronic device cabinet.

A fair reading of the Kohara et al. (US 4,654,966) reference discloses an IC board and method of producing same that incorporates mounting chips on a substrate and providing sidewalls to mount an airtight cover having an integral heat sink on the outer surface thereof (see for example, Figure 11 and Col. 3, lines 37 – 52). In order to provide heat transfer from the chips mounted on the substrate the cover/heat sink is required to be spaced a critical distance from the back surface of the mounted chips (see for example, Col.3, lines 62 – 68, and Col. 5, lines 20 – 32). In addition, it is preferred to provide a heat transfer gas within the airtight enclosure to aid in the heat transfer from the surfaces of the chips to the inner surface of the cover/heat sink (see for example, Col. 5, lines 51 – 54). This reference specifically, claims to overcome the deficiencies of prior art systems such as that disclosed in the Watari (US 4,612,601) reference (see for example, Col. 4, lines 14 – 32) thus making the combining of these two references impossible. Once again, there is nothing in this reference that discloses how to remove these critical elements to allow for the chips to be removed or to allow the claimed device to be rack mounted in a removable manner to an electronic device cabinet. Furthermore, the Kohara et al. (US 4,654,966) reference teaches directly away from the Watari (US 4,612,601) reference in teaching a space between the backside of the mounted chips and the inner surface of the cover/heat sink. This is exactly opposite the critical teaching of the Watari (US 4,612,601) reference where it is necessary to bond permanently the chip back surfaces to the inner surface of the cover/heat sink. Thus, these references are not combinable. Even if they were combinable, which they are not, they do not disclose, teach, or fairly suggest

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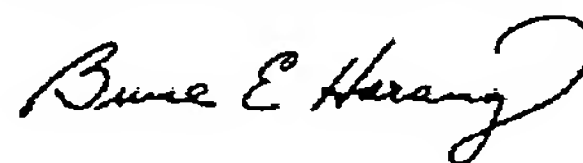
how to produce the electronic component enclosure suitable for rack mounting in an electronic device cabinet. Furthermore, neither reference provides the necessary impetus to direct one of ordinary skill in the art to pick and choose various portions of each reference while ignoring critical portions of each reference to arrive at Applicants' claimed invention.

Clearly, when viewed in this light neither the Watari (US 4,612,601) reference nor the Kohara et al. (US 4,654,966), or any combination thereof disclose, teach, or suggest the enclosure suitable for mounting in an electronic device cabinet of Applicants' present invention.

Applicants acknowledge the prior art made of record as pertinent, but not relied upon as a basis of rejection by the Examiner. Applicants make no further comment regarding this prior art.

In view of the remarks herein, and the amendments hereto, it is submitted that this application is in condition for allowance, and such action and issuance of a timely Notice of Allowance is respectfully solicited.

Respectfully submitted,



Bruce E. Harang
Registration No. 29,720
Tel.: (360) 903-4693